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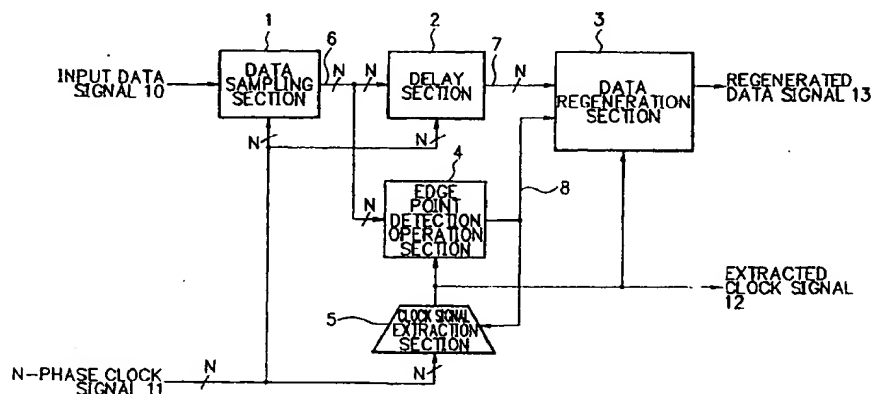
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(54) Digital PLL circuit and signal regeneration method

(57) An input data signal (10) is digitally sampled by a data sampling section (1) using an N-phase clock signal (11) including N clock signals whose frequencies are almost the same as the bit rate of the input data signal (10) and whose phases have been successively shifted by $1/N$ of the clock cycle, and thereby a parallel sample data signal (6) including N sample data signals is obtained. An edge point detection operation section (4) detects edge points in the N sample data signals in one cycle of an extracted clock signal (12) and outputs an edge point operation output signal (8). A clock signal extraction section (5) selects a clock signal from the N-phase clock signal (11) based on the information of the

edge point operation output signal (8) and outputs the selected clock signal as the extracted clock signal (12). A delay section (2) delays the N sample data signals of the parallel sample data signal (6) and thereby outputs a parallel delayed sample data signal (7) including N delayed sample data signals. A data regeneration section (3) selects a delayed sample data signal from the N delayed sample data signals based on the information of the edge point operation output signal (8) and outputs the selected delayed sample data signal as a regenerated data signal (13). Due to the delay by the delay section (2), extraction time of the digital PLL circuit can be decreased to 0 without enlarging the overhead in the input data signal (10).

FIG. 6





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EUROPEAN SEARCH REPORT

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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A	WO 88 05236 A (GRUMMAN AEROSPACE CORP) 14 July 1988 (1988-07-14) * figures 1,2 * * page 8, line 12 - page 8, line 20 * -----	1,3,17, 19,30,32	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H04L
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 May 2003	Examiner Molinari, F
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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